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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,795	10/27/2005	Bernhard Nellessen	745691-35	1968
22204	7590	09/20/2007		
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			EXAMINER CORDRAY, DENNIS R	
			ART UNIT 1731	PAPER NUMBER
			MAIL DATE 09/20/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/521,795	<b>Applicant(s)</b> NELLESSEN ET AL.	
	<b>Examiner</b> Dennis Cordray	<b>Art Unit</b> 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16 and 18-29 is/are rejected.
- 7) ☒ Claim(s) 6 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 7/9/2007 have been fully considered but they are not persuasive.

Applicant argues that Mollett et al requires a resin precursor, cross linker and catalyst that are not required in the instant invention. The Claim language "comprising" used in the instant invention allows for other components to be present, thus the resin precursor, cross linker and catalyst of Mollett et al are not excluded by the instant claims and any arguments regarding additional components are not relevant absent evidence showing that the additional components prevent the composition from performing the function claimed. The disclosure of Mollett et al teaches at least the features of the instant claims, which are open for additional components, thus anticipates the scope thereof.

Regarding the dispersant of Mollett not being present as a deinking additive, it is not necessary that the prior art suggest that an additive achieves the same advantage or result discovered by applicant. When the structure or composition recited in the reference is substantially identical to that of the claims of the instant invention, claimed properties or functions presumed to be inherent (MPEP 2112- 2112.01). A prima facie case of either anticipation or obviousness has been established when the reference discloses all the limitations of a claim. In the instant case, the claimed structure is revealed in the prior art (note the discussion above with respect to open claim language).

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"[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Regarding the argument that the polyalkoxylated organopolysiloxanes of Mollett et al are not the preferred dispersant, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) Furthermore, "[t]he prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Applicant argues on p 13 that the Mollett and Richmann references fail to teach the specific organo-modified siloxanes recited in the claims. Claim 1 recites a very broad range of organo-modified siloxanes that is encompassed by the general disclosures of Mollett et al and Richmann et al. The evidence presented to support the

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very broad claimed range pertains to the use of the very specific polymer (Siloxane 1) and addition rate. Other polymers, labeled Siloxanes 2-8, are distinguished by a particular percent of substitution of the siloxane groups (5, 10 or 15%) and a particular degree of polymerization (100, 300 and 500), but no particular substituting group Z is mentioned, thus the experimental data are not sufficiently detailed to be useful in further support of the instant claims. Out of the millions of possible polymers embodied by Claim 1, only one specific polymer and seven additional nonspecific polymers are represented by data. Representative comparisons are made only with a commercially available fatty acid based deinking preparation of unknown composition. No comparisons are provided with siloxanes outside of the very specifically claimed composition range or apparently using any other group Z than that discussed above. It is the Examiner's opinion that the experimental data provided are insufficient to demonstrate special properties for the broad claims over the prior art cited below.

Claim 1 requires at least one group Z and that  $q+s$  be at least 1 or greater, with an upper limit of 400. The generally disclosed polyalkoxylated organopolysiloxanes (e.g.- poly (dimethylsiloxane) poly (ethyleneglycol) ether) of Mollett et al and the dimethylpolysiloxane ethoxylates of Richmann et al must of necessity have at least one poly (ethyleneglycol) ether substituents, thus anticipate "at least one group Z." The poly (ethyleneglycol) ether or ethoxylated substituent overlays or encompasses the p, r, q, s and  $q+s$  ranges, thus anticipates them. One of ordinary skill in the art would have readily envisioned polyalkoxylated organopolysiloxanes having any of the broadly claimed structures, with the possible exception of those of claims 6 and 17, from the

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disclosure of Mollett et al or Richmann et al, thus anticipating the instant claims or, at least, making the claimed polymers obvious.

Regarding the HLB value, the structure of the polysiloxane disclosed by Mollett et al and Richmann et al significantly overlays the claimed organo-modified polysiloxane, thus has the claimed HLB or, at least, it would have been obvious to one of ordinary skill in the art to obtain the claimed HLB because, when the structure or composition recited in the reference is substantially identical to that of the claims of the instant invention, claimed properties or functions presumed to be inherent (MPEP 2112- 2112.01).

Regarding flotation as a method disclosed by Richmann et al, the reference discloses an example of separation of the aggregated ink particles of a size greater than 10 microns by centrifugal cleaners (col 1, lines 45-50; col 6, Table 1 footnotes). Richmann also teaches that a particle size range from 0.5 to 15 microns can be efficiently separated by traditional methods of froth flotation and washing (col 1, lines 61-66). Thus, while not the preferred method of Richmann et al, it was generally known and would have been obvious to one of ordinary skill in the art to use flotation as a functionally equivalent option to separate the particles in the disclosed size range. For reasons given above, disclosed examples and the preferred embodiment of using a centrifugal cleaner does not constitute a teaching away from a broader disclosure of alternatives known in the art, such as flotation, because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed. Both centrifugal cleaning and flotation are disclosed for "most efficient removal" of particles in a size

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range of 10-15 microns. Thus, flotation is not discredited, but disclosed as a known method that is also useful with the same particles.

Applicant argues against combining Mollett et al and Richmann et al. The rejections of record do not seek to combine the two references because there is no need to do so. The only combinations are of Mollett et al and Ishibashi et al or of Richmann et al and Ishibashi et al. Ishibashi et al was used merely to show that the claimed fatty acids were also generally known to those of ordinary skill in the art at the time of the invention for use in deinking processes. The combination of fatty acids disclosed by Ishibashi et al with the deinking compositions of Mollett et al or Richmann et al, each being taught for the same use in prior art, would have been obvious. As discussed above, it is not necessary that the combination be made for the same reasons as in the instant invention, only that there be some reasonable explanation for combining them. The reasoning used is supported by prior case law as detailed in the rejection.

Regarding the argument of insufficient support for rejection of claim 23, the polyalkoxylated organopolysiloxane of Moffett et al are used as a dispersant and would not perform that function without additional surfactants if it were not self-emulsifying. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use a self-emulsifying polysiloxane to minimize problems in forming the dispersion. With regard to Richmann et al, the objective of the dimethylpolysiloxane ethoxylates is to aggregate the ink particles for subsequent removal. Why would it not have been obvious to use a self-emulsifying polysiloxane to aid in the suspension of the aggregated particles without the need for additional surfactants? Alternatively, when

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the structure or composition recited in the reference is substantially identical to that of the claims of the instant invention, claimed properties or functions presumed to be inherent (MPEP 2112- 2112.01). The claimed polysiloxanes are anticipated or obvious over the prior art, thus the properties are also anticipated or obvious. In addition, no evidence has been submitted demonstrating special advantages obtained using a self-emulsifying polysiloxane over a non-self-emulsifying polysiloxane.

Regarding Claim 26, the subject matter of the claim, which is the only claim reciting a pH, was specifically addressed in the rejection over Richmann et al, which stated that "Use of the disclosed surfactants allows the process to operate at ambient pH, thus alleviating the need for caustic or acid tanks in the mill environment (col 2, lines 38-43)." Ambient pH is construed by the Examiner to be substantially neutral, since caustic or acid tanks are not needed in the mill environment. The omission of the claim number in the rejection heading was a typographical error and has been corrected.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7-16, 18, 22, 23-25 and 27-29 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mollett et al (4919754).

Claims 1-5, 7-13, 18, 22, 24-25 and 27-29: Mollett et al discloses a method for deinking recycled pulp comprising pulping the waste paper in an aqueous suspension to which a deinking additive has been added and removing the detached ink by flotation (col 2, lines 13-24). The additive preferably comprises a curable resin precursor mixture of a dihydroxy poly(dialkyl)siloxane and a poly(alkylhydrosiloxane) (col 3, lines 3-8). The alkyl groups are preferably 1-4 carbons. The resin precursor is not substantive to the cellulosic fibers of the pulp (Abs). The relatively hydrophobic resin precursor is dispersed in water (thus forming an aqueous emulsion) using a water-soluble surfactant or dispersant, which can be a polyalkoxylated organopolysiloxane (col 3, lines 29-36, col 4, line 38). In an example, polydimethylsiloxanes are used as the resin precursor and polyethyleneoxy/polypropyleneoxy-functional polydimethylsiloxane as the dispersant (col 6, lines 15-22). The dispersant is present in an amount from 0.1 to 20% by weight of the resin precursor (col 3, lines 47-49). The resin precursor is added in an amount from 0.1 to 10% by weight of the pulp solids (col 4, lines 43-47). Thus the polyalkoxylated organopolysiloxane is added in an amount from 0.0001 to 2% by weight of the pulp solids, the range encompassing the claimed addition range. The resin precursor can be suspended in the pulping liquor (in the pulping stage) or added shortly

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before pulping (before the pulping stage) (col 4, lines 55-58). The structure of the polyalkoxylated organopolysiloxane polymers significantly overlays the claimed organo-modified polysiloxane polymer and will thus, in addition to acting as a dispersant, function as a deinking agent. At the least, the claimed organo-modified polysiloxane polymer would have been obvious to one of ordinary skill in the art from the disclosure of Mollett et al.

Mollett et al teaches that the pigment particles are removed by conventional means, such as froth flotation (col 2, lines 17-24).

Claim 14: The structure of the polysiloxane disclosed by Mollett et al significantly overlays the claimed organo-modified polysiloxane, thus has the claimed HLB or, at least, it would have been obvious to one of ordinary skill in the art to obtain the claimed HLB.

Claims 15-16: the resin precursor has a molecular weight from 5,000 to 70,000 (col 3, lines 14-15). It would have been obvious to one of ordinary skill in the art to use a similar molecular weight for the dispersant polyalkoxylated organopolysiloxane to make the dispersant more miscible with the resin precursor, as required by Mollett et al (col 3, lines 29-31).

Claim 23: In the absence of evidence showing special properties thereof, a gum-based self-emulsifying polysiloxane would have been obvious over the disclosure of Mollett et al since the ethoxylated polysiloxane is intended to be a dispersant.

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6. Claims 1-5, 7-16, 18-19, 23-29 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Richmann et al (5248388).

Claims 1-5, 7-14, 18, 24-29: Richmann et al discloses the use of surfactants having an HLB from 0.5 to 10 for deinking of electrostatic printed wastepaper (Abstract). The surfactants include block copolymers of ethylene oxide and propylene oxide, alcohol ethoxylates and dimethylpolysiloxane ethoxylates (col 2, lines 18-22 and 38-54, col 3, lines 10-28; col 4, lines 42-46). Use of the disclosed surfactants allows the process to operate at ambient pH (substantially neutral), thus alleviating the need for caustic or acid tanks in the mill environment (col 2, lines 38-43). The amount of surfactant added to the aqueous slurry of wastepaper is from 5-20 lb/ton of fiber or 0.25 to 1% by weight (Claim 13).

Richmann discloses a process for separation of aggregated ink particles of a size greater than 10 microns by centrifugal cleaners (col 1, lines 45-50; col 6, Table 1 footnotes). Richmann also teaches that a particle size range from 0.5 to 15 microns can be efficiently separated by traditional methods of froth flotation and washing (col 1, lines 61-66). Thus, while not the preferred method of Richmann et al, it was generally known and would have been obvious to one of ordinary skill in the art to use flotation as a functionally equivalent option to separate the particles in the size range disclosed.

Claims 15-16: The molecular weight of the dimethylpolysiloxane ethoxylates is from 600 to 20,000 (col 4, lines 42-46).

Claim 19: A mixture of dimethylpolysiloxane ethoxylates and copolymers of ethylene oxide and propylene oxide (polyether) would have been obvious to one of ordinary skill in the art, since both are disclosed for the same purpose, thus polyethers can be present. "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

Claim 23: In the absence of evidence showing special properties thereof, a gum-based self-emulsifying polysiloxane would have been obvious over the disclosure of Richnamm et al to aid in the dispersion thereof into the pulp.

7. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollett et al or Richmann et al in view of Ishibashi et al (5228369).

Mollett et al and Richmann et al do not disclose the use of fatty acids in the process.

Ishibashi et al discloses a deinking process in which a mixture of fatty acids are used as the deinking agent (Abs). The ink particles are removed by flotation (col 1, lines 15-21). In one embodiment, the mixture comprises essentially of fatty acids having from 8 to 24 carbon atoms, with the average carbon number ranging from 12.7 to 22.5 and from 9.6% to 70.6% of the mixture consists of fatty acids having from 20 to 24 carbons (col 3, lines 7-15). Some specific examples of the fatty acids include lauric

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acid, myristic acid, palmitic acid, stearic acid and oleic acid, which overlay the claimed species (col 5, lines 3-11). The disclosure is not limited to the particular examples recited, but generally discloses acids having from 8 to 24 carbon atoms as well, which include the remainder of the claimed species, or, at least, it would have been obvious to one of ordinary skill in the art to use the claimed species in the absence of data showing special properties for specific acids.

In addition, applicant discloses commercially available fatty-acid based deinking agents, which would have been known to one of ordinary skill in the art at the time of the invention.

The art of Mollett et al, Richmann et al, Ishibashi et al and the instant invention are analogous as pertaining to deinking agents. For the reasons given in the rejection of Claim 19 above, it would have been obvious to one of ordinary skill in the art to use one or more fatty acids in the deinking process of Mollett et al or Richmann et al in view of Ishibashi et al as a functionally equivalent option.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*DRC*  
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